TECHNICAL MANUAL

Of

Intel QM77 Express Chipset

Based Mini-ITX M/B

NO. G03-NF9G-F

Revision: 1.0

Release date: August 28, 2012

Trademark:

*** Specifications and Information contained in this documentation are furnished for information use only, and are subject to change at any time without notice, and should not be construed as a commitment by manufacturer.**

Environmental Protection Announcement

Do not dispose this electronic device into the trash while discarding. To minimize pollution and ensure environment protection of mother earth, please recycle.

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Environmental Safety Instruction

- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.

- 0 to 60 centigrade is the suitable temperature. (The figure comes from the request of the main chipset)

- Generally speaking, dramatic changes in temperature may lead to contact malfunction and crackles due to constant thermal expansion and contraction from the welding spots' that connect components and PCB. Computer should go through an adaptive phase before it boots when it is moved from a cold environment to a warmer one to avoid condensation phenomenon. These water drops attached on PCB or the surface of the components can bring about phenomena as minor as computer instability resulted from corrosion and oxidation from components and PCB or as major as short circuit that can burn the components. Suggest starting the computer until the temperature goes up.

- The increasing temperature of the capacitor may decrease the life of computer. Using the close case may decrease the life of other device because the higher temperature in the inner of the case.

- Attention to the heat sink when you over-clocking. The higher temperature may decrease the life of the device and burned the capacitor.

USER'S NOTICE

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Manual Revision Information

Reversion	Revision History	Date
1.0	First Edition	2012-08-28

Item Checklist

- ☑ Motherboard
- ☑ DVD for motherboard utilities
- ☑ User's Manual
- ☑ Cable(s)
- ☑ I/O Back panel shield

Chapter 1

Introduction of the Motherboard

1-1 Feature of Motherboard

- Intel® QM77 express chipset
- Intel® Socket G (rPGA988B) supporting compatible Intel Core™ i3, i5, i7 Mobile Processors under 45W power consumption, with low power consumption never denies high performance
- Support 2 * 1066/1333/1600 MHz DDRIII SO-DIMM up to 16GB and dual channel function
- Integrated with Intel® 82574L and Intel® 82579LM Gigabit Ethernet LAN chip
- Integrated ALC662 6-channel HD Audio Codec
- Support USB 3.0 data transport demands.
- Support PCI Express x16 and Mini-PCIE slot
- Integrated with 24-bit dual channel LVDS
- 4* SATAII ports and 2* SATAIII ports
- HDMI, DP and VGA Video Outputs
- Support CPU Smart FAN
- Supports ACPI S3 Function
- Compliance with EuP Standard
- Support Watchdog Timer Technology

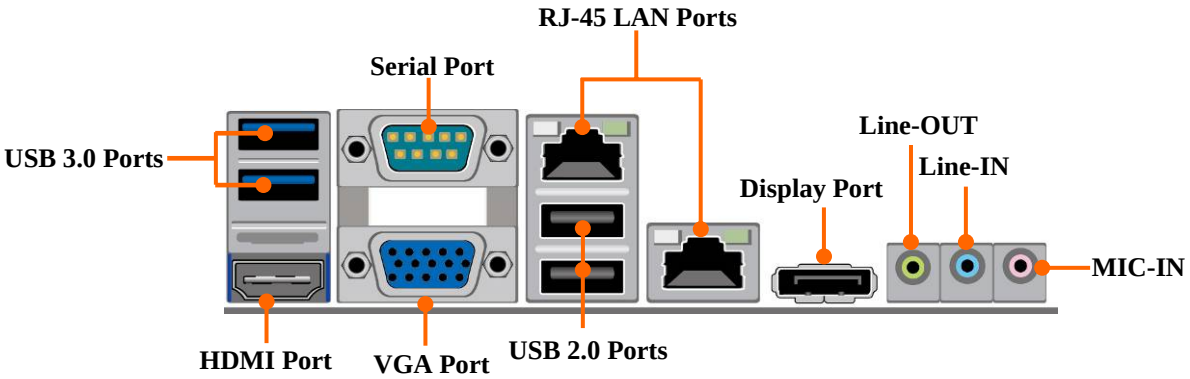
1-2 Specification

Spec	Description
Design	● Mini-ITX form factor 6 layers ; PCB size: 17.0x17.0cm
Chipset	● Intel QM77 Express Chipset
CPU Socket	● Intel socket G (rPGA 988B) ● Support up to Intel Core™ i3, i5, i7 Mobile Processors under 45W power consumption ** for detailed CPU support information please visit our website*
Memory Slot	● DDRIII SO-DIMM slot x2 ● Support DDRIII 1066/1333/1600 MHz DDRIII SO-DIMM expandable to 16GB ● Support dual channel function
Expansion Slot	● 1 pcs of PCI Express x16 slot ● 1 pcs of half-size Mini-PCIE slot ● 1 pcs of full-size Mini-PCIE /Mini-SATA slot
Dual LAN Chip	● Integrated Intel® 82574L and 82579LM Gigabit Ethernet LAN chip that support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate
Audio Chip	● Realtek ALC662 6-channel Audio Codec integrated ● Audio driver and utility included
BIOS	● 64M DIP Flash ROM
Multi I/O	● HDMI port connector x1 ● VGA port connector x1 ● COM port connector x 1 ● USB 3.0 port connector x2 ● USB 2.0 port connector x2 ● RJ-45 LAN connector x2 ● Display port connector x1 ● Audio connector x3 (Line-in, Line-out, MIC) ● SATAIII port connector x2 ● SATAII port connector x4 ● Front panel audio header x1

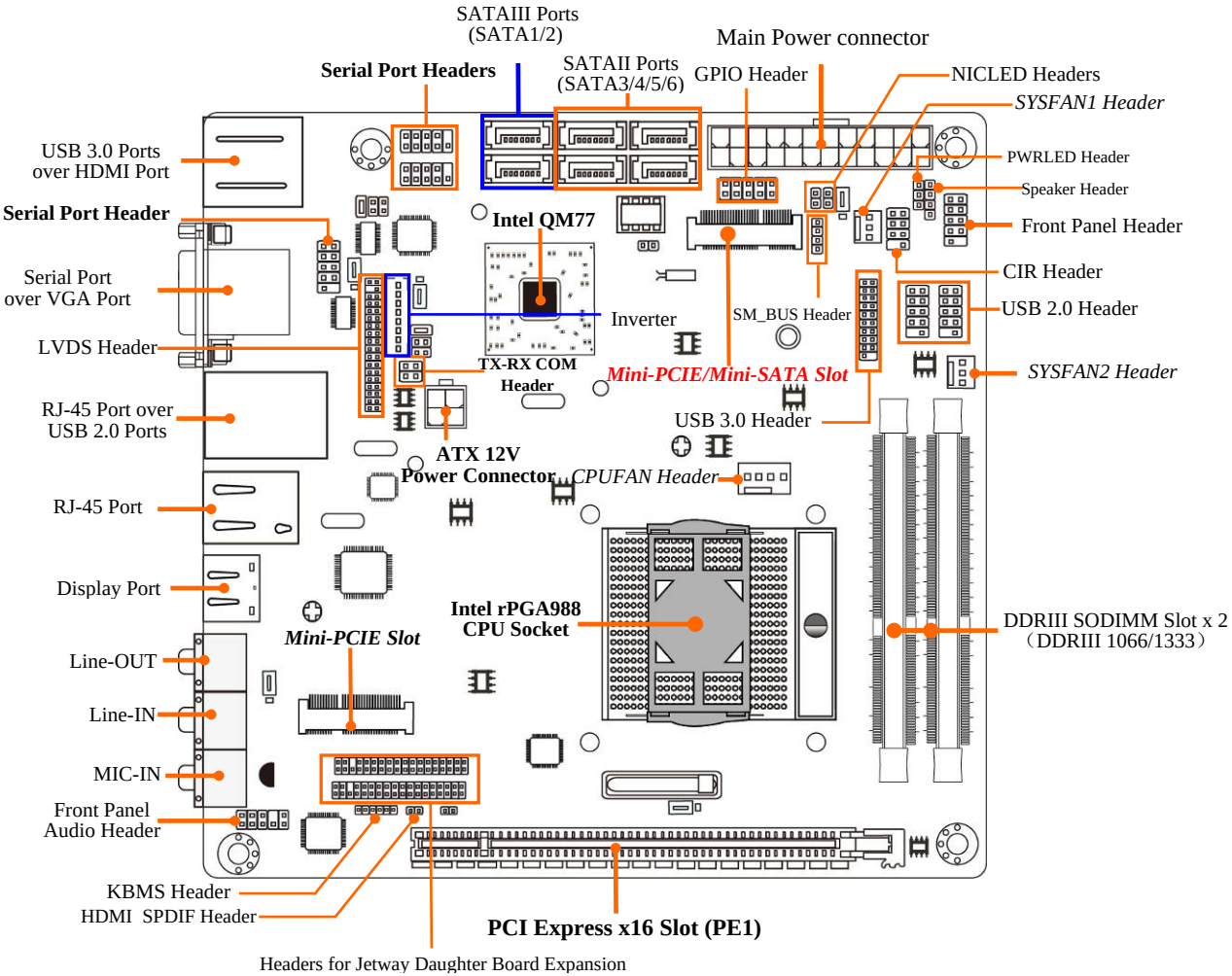
	● KBMS header x1 ● LVDS header x1 ● LVDS Inverter header x1 ● HDMI_SPDIF header x1 ● GPIO header x1 ● Serial port header x3 ● TX-RXCOM header x1 ● USB 2.0 header x2 (support four expansion USB 2.0 ports) ● USB 3.0 header x1 (support two expansion USB 3.0 ports) ● CIR header x1 ● SM_BUS header x1 ● NICLED header x2 ● Speaker header x1 ● PWRLED header x1 ● Front panel header x1

1-3 Layout Diagram

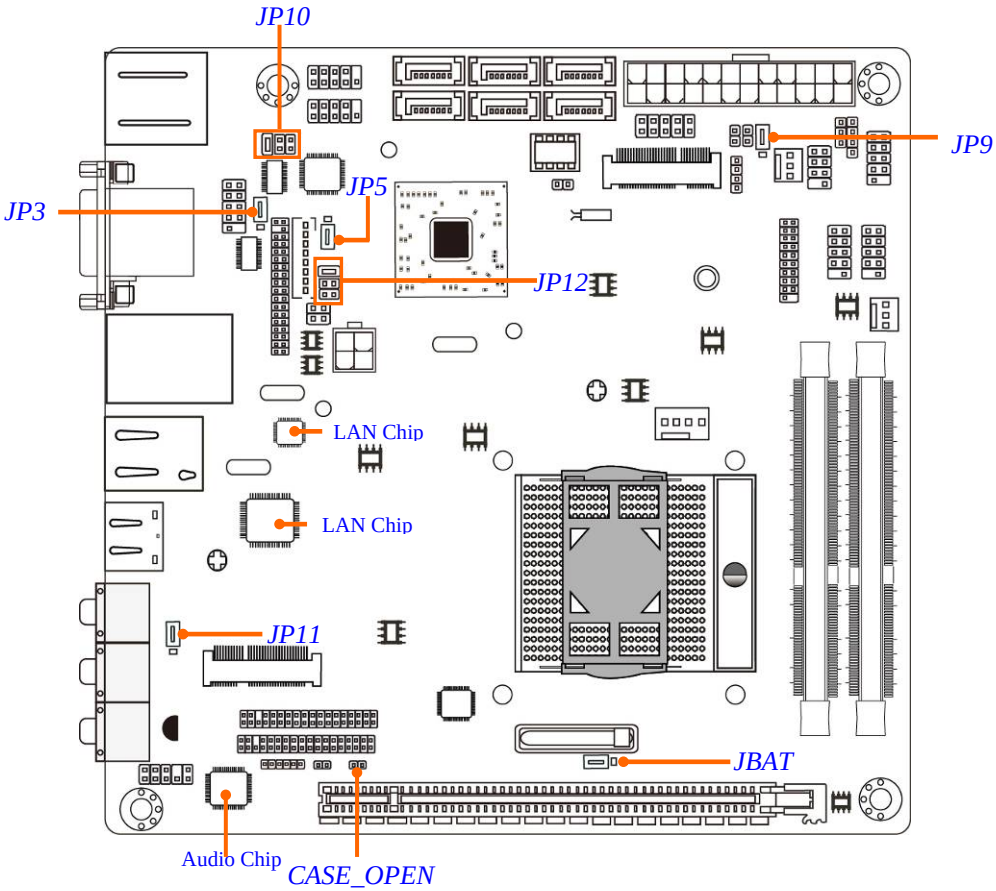
Rear IO Diagram



Motherboard Internal Diagram



Motherboard Jumper Position



Jumper

Jumper	Name	Description
JBAT	CMOS RAM Clear Function Setting	3-pin Block
JP3	LVDS PVCC 5V/3.3V Select	3-pin Block
JP5	Inverter 12V/5V Select	3-pin Block
JP9	mSATA/Mini PCI-E Power VCC 3.3V /3VSB Select	3-pin Block
JP11	Mini PCI-E Power VCC 3.3V /3VSB Select	3-pin Block
JP10	COM4 Pin9 Function Select	6-pin Block
JP12	COM4 Header RS232/485/422 Function Select	6-pin Block
COPEN	Case Open Message Display Function	2-pin Block

Connectors

Connector	Name
ATXPWR	ATX Power Connector
ATX12V	ATX 12V Power Connector
SATA1/SATA2	Serial ATAIII Connector x2
SATA3/SATA4/SATA5/SATA6	Serial ATAII Connector x4
MSATA	Mini-PCIE/ Mini-SATA Hard Disk Connector
HDMI	High-Definition Multimedia Interface Connector
USB3	USB 3.0 Port Connector x2
VC1 (Top)	Serial Port Connector
VC1 (Bottom)	Video Graphic Attach Connector
UL1(Middle & Bottom)	USB 2.0 Port Connector x2
UL1(Top)	RJ-45 LAN Connector
LAN	RJ-45 LAN Connector
DP	Display Port Connector
AUDIO1	Line Out /Line In /MIC Audio Connector

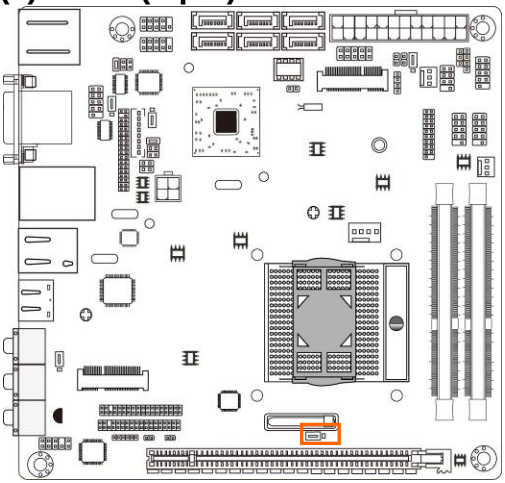
Headers

Header	Name	Description
FP_AUDIO	Front Panel Audio Header	9-pin block
KBMS	PS/2 Keyboard & Mouse Header	6-pin block
HDMI_SPDIF	HDMI_SPDIF Out Header	2-pin Block
COM2/3/4	Serial Port Header x3	9-pin block
TX_RXCOM	RS 422/485 port header	4-pin block
GPIO	GPIO Header	10-pin Block
USB1/2	USB 2.0 Port Header	9-pin block
USB4	USB 3.0 Port Header	19-pin Block
SM_BUS	SMBUS Header	4-pin block
LVDS	LVDS Header	35-pin Block
INVERTER	LVDS Inverter	8-pin Block
CIR	CIR Header	7-pin Block
NIC_LED1/NIC_LED2	LANLED Header x2	2-pin Block
PWR LED	Power LED	3-pin Block
SPEAK	Speaker Header	4-pin Block
JW_FP	Front Panel Header(PWR LED/ HD LED/ /Power Button /Reset)	9-pin block
CPU FAN	CPU FAN Header	4-pin Block
SYSFAN1/SYSFAN2	SYSFAN1/2 Header	3-pin Block
CN1/CN2	Jetway Daughter Board Header x2	35-pin Block

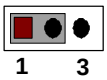
Chapter 2
Hardware Installation

2-1 Jumper Setting

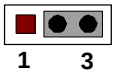
(1) JBAT (3-pin): Clear CMOS



JBAT



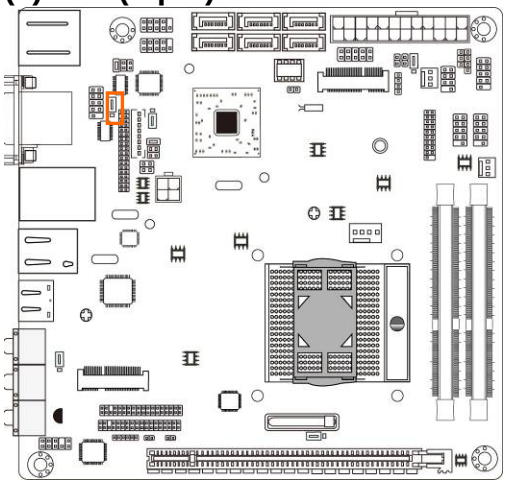
1-2 Short： Normal；



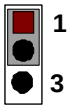
2-3 Short： Clear CMOS

CMOS Clear Setting

(2) JP3 (3-pin): LVDS PVCC 5V / 3.3V Function Select

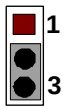


JP3



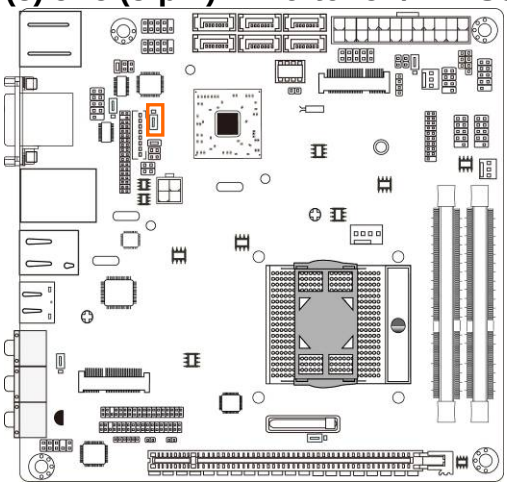
1-2 closed: LVDS PVCC= 5V

JP3

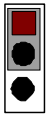


2-3 closed : LVDS PVCC= 3.3V

(3) JP5 (3-pin): Inverter 5V/12V Select



JP5

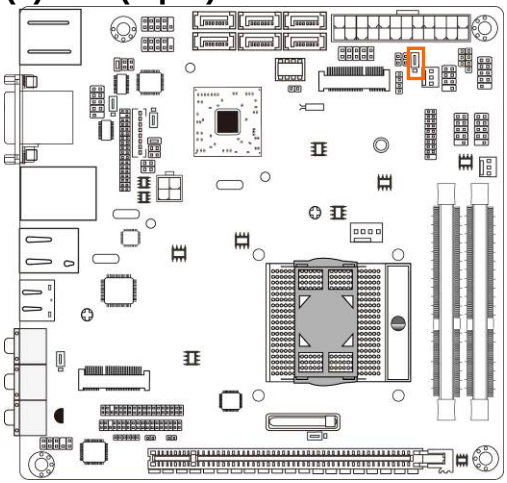


1-2 closed: Inverter 12V selected;

JP5

2-3 closed: Inverter 5V select

(4) JP9 (3-pin): Mini-SATA/Mini-PCIE Power VCC3.3V/ 3VSB Function Select



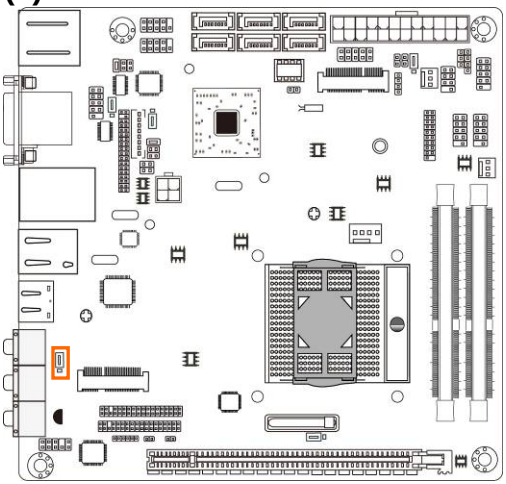
JP9

1-2 closed: Mini-SATA/Mini-PCIE Slot VCC= VCC3.3V;

JP9

2-3 closed: Mini-SATA/Mini-PCIE Slot VCC=3VSB

(5) JP11: Mini PCI-E Power VCC3.3V/ 3VSB Function Select



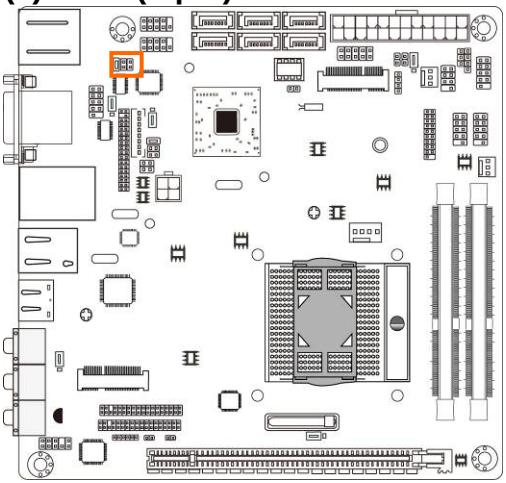
JP11

1-2 closed: Mini PCI-E Slot VCC= VCC3.3V;

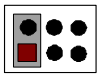
JP11

2-3 closed: Mini PCI-E Slot VCC=3VSB

(6) JP10 (6-pin): COM4 Pin9 Function Select



JP10

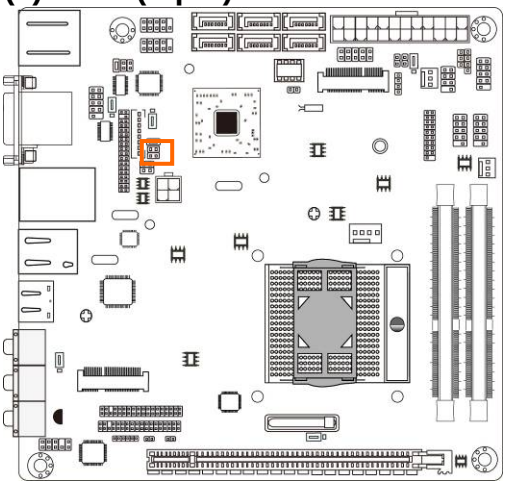


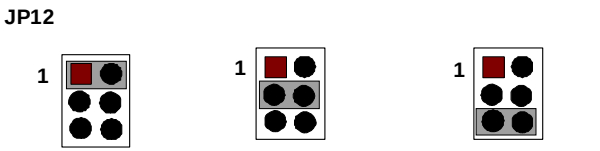
1-2 closed: RS232;

3-4 closed : +12V;

5-6 closed : +5V

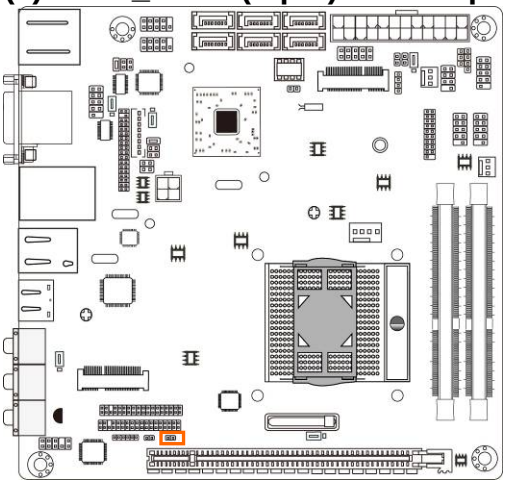
(7) JP12 (6-pin): COM4 Header RS232/422/485 Function Select

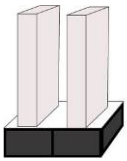




1-2 closed: RS232; 3-4 closed : RS485; 5-6 closed : RS422

(8)CASE_OPEN(2-pin): Case Open Message Display Function Select



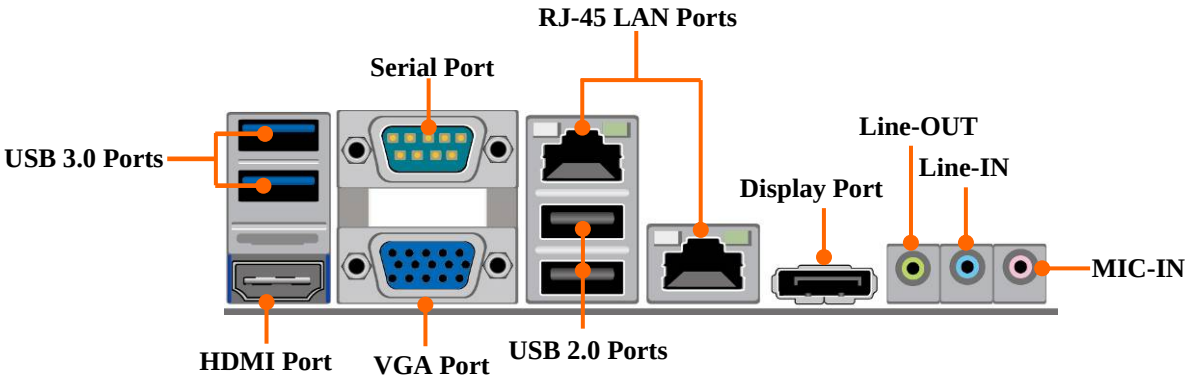


Pin 1-2 shorted: Case open display function enabled. Use needs to enter BIOS and enable 'Case Open Detect' function. In this case if you case is removed, next time when you restart your computer a message will be displayed onscreen to inform you of this.

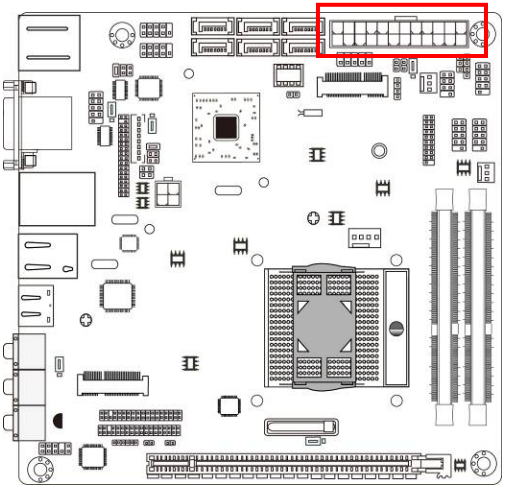
2-2 Connectors and Headers

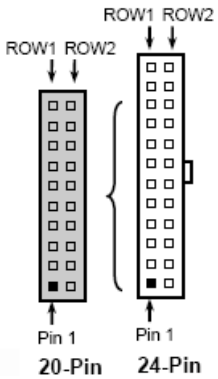
2-2-1 Connectors

(1) Rear Panel Connectors



(2) ATXPWR (24-pin block): Main Power Connector

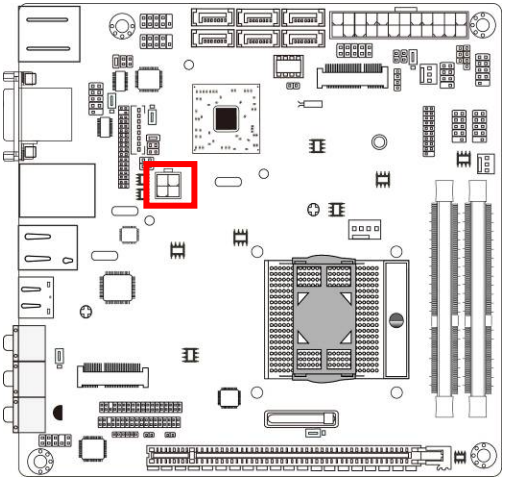


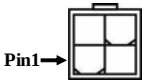


PIN	ROW1	ROW2
1	+3.3V	+3.3V
2	+3.3V	-12V
3	GND	GND
4	+5V	PS_ON
5	GND	GND
6	+5V	GND
7	GND	GND
8	Power OK	-5V
9	+5V Stand by	+5V
10	+12V	+5V
11	+12V	+5V
12	+3.3V	GND

24-pin Main Power Connector

(3) ATX12V (4-pin block): ATX12V Type Power Connector

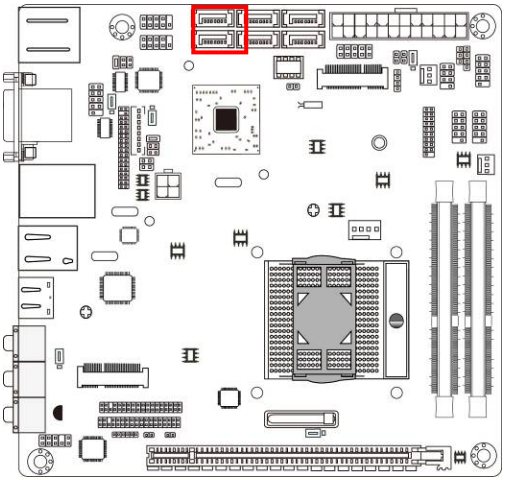




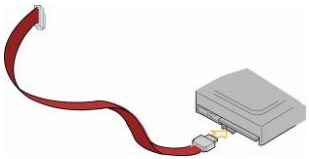
Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

(4) SATA1/SATA2: SATAIII Port connector

These connectors are high-speed SATAIII ports that support 6 GB/s transfer rate.



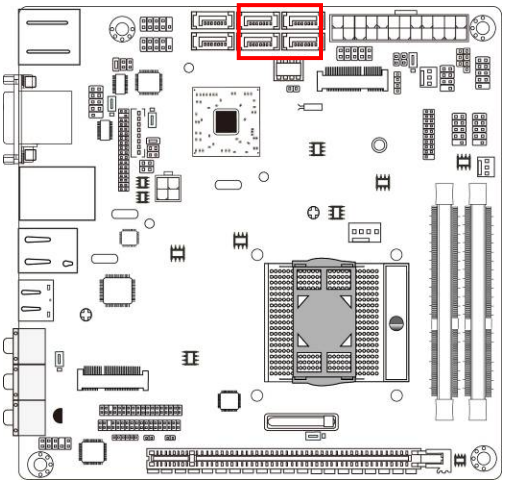
Pin No.	Defnition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND



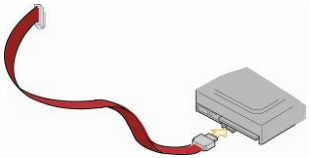
***Note:** In the case that user install Mini SATA hard disk to MSATA slot, SATA2 port will be functionless.*

(5) SATA3/SATA4/SATA5/SATA6:SATAII Port connector

These connectors are high-speed SATAII ports that support 3 GB/s transfer rate.

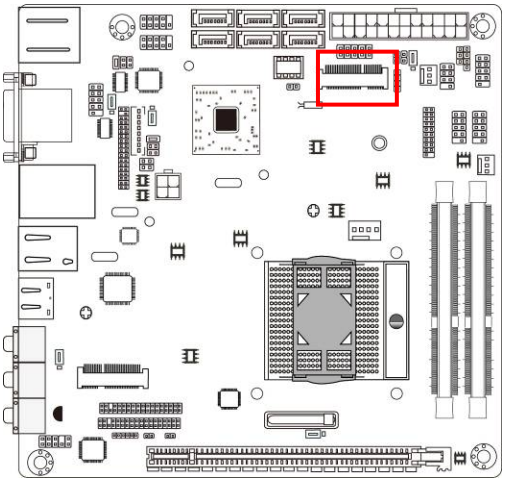


Pin No.	Defnition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND



(6) MSATA: Mini -SATAIII Port Connector

MSATA slot can function as Mini-SATA connecter or full-size Mini-PCIE slot. When function as Mini-SATA connector it can be connected to a single solid-state hard disk driver and supports SATA 6Gb/s specification.

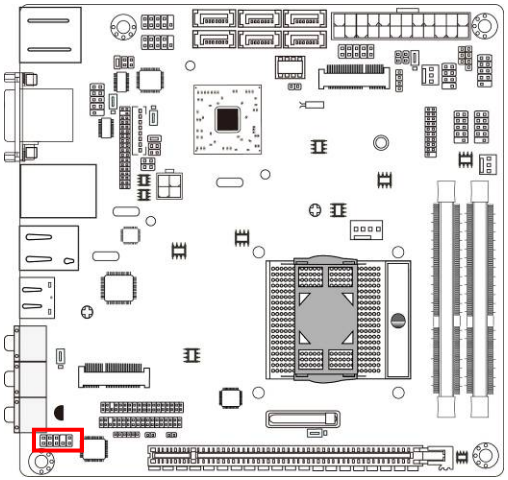


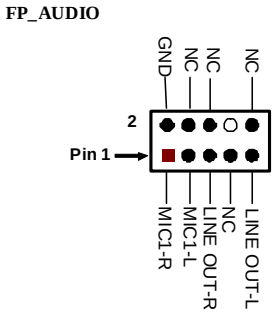
MSATA Connector

2-2-2 Headers

(1) FP_AUDIO (9-pin): Line-Out, MIC-In Header

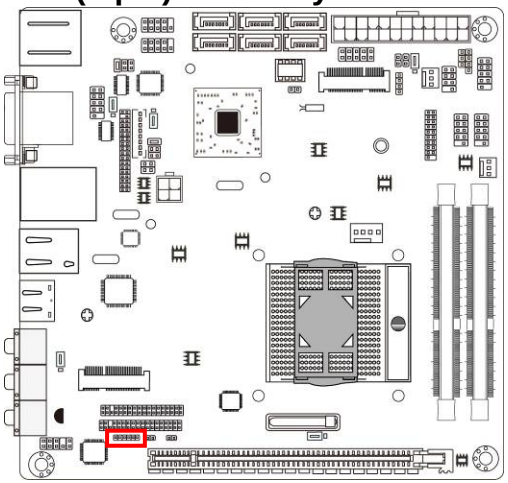
This header connects to Front Panel Line-out, MIC-In connector with cable.

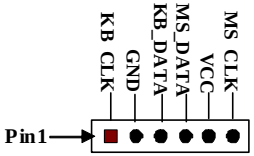




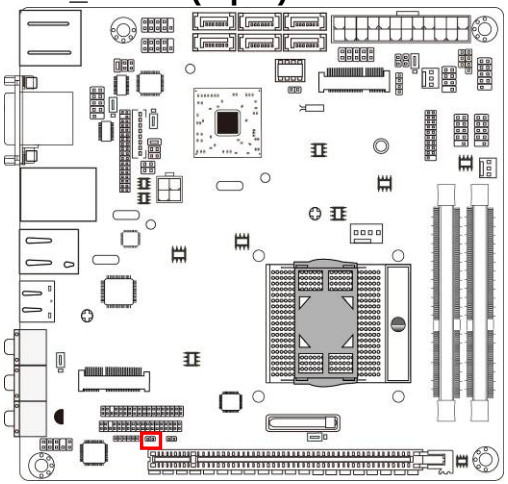
Line-Out, MIC Header

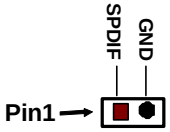
(2) KBMS (6-pin): PS/2 Keyboard & Mouse Header





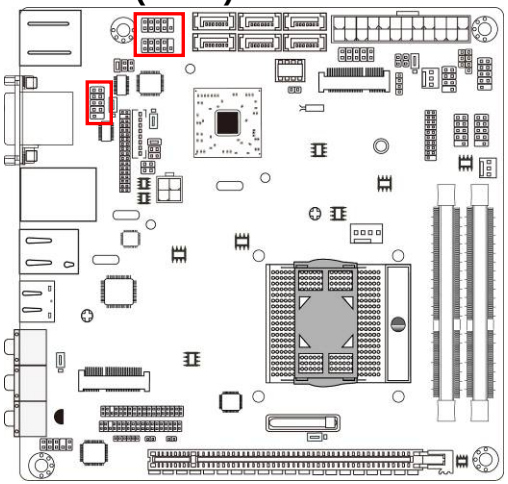
(3) HDMI_SPDIF (2-pin): HDMI-SPDIF Out header

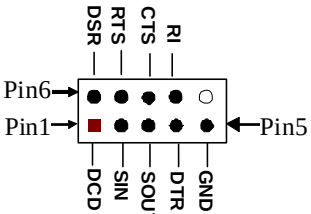




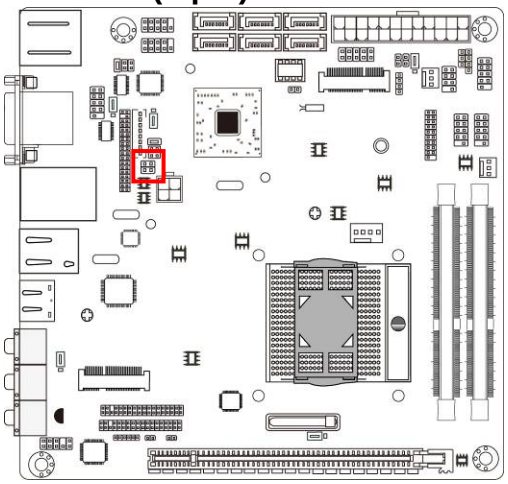
HDMI_SPDIF Header

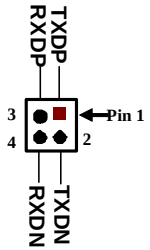
(4) COM2/3/4 (9-Pin): Serial Port Header



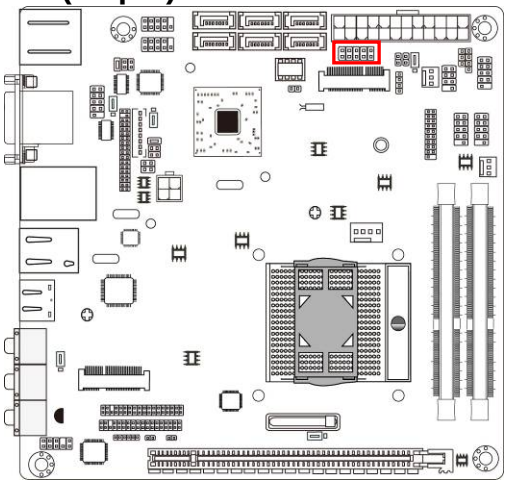


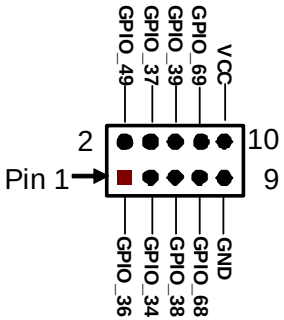
(5) TX-RXCOM (4-pin): RS422/485 Header



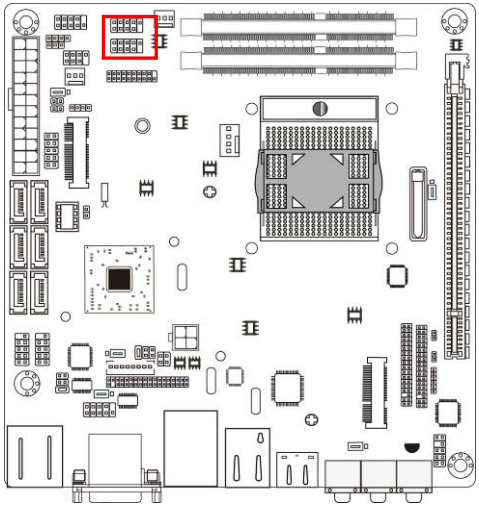


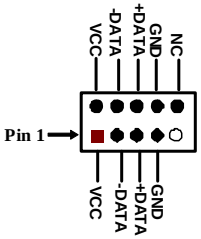
(6) GPIO (10-pin): GPIO Header



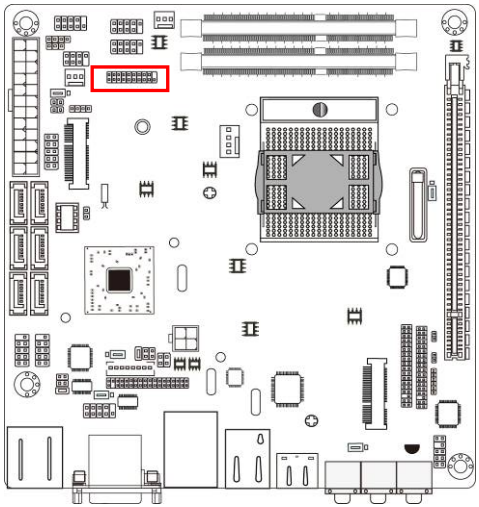


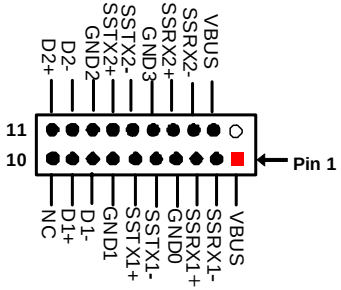
(7) USB1/USB2 (9-pin): USB 2.0 Port Header



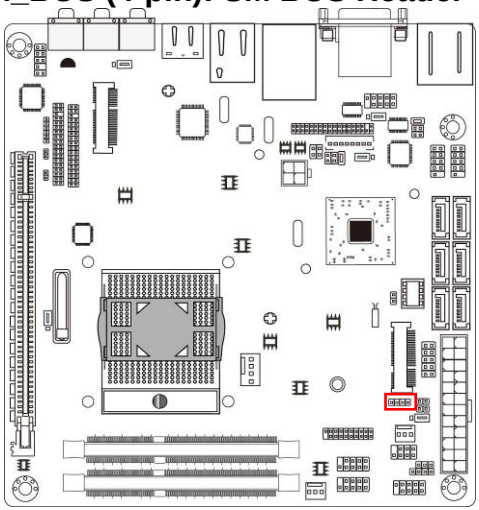


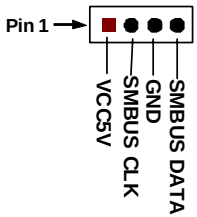
(8) USB4 (19-pin): USB 3.0 Port Header



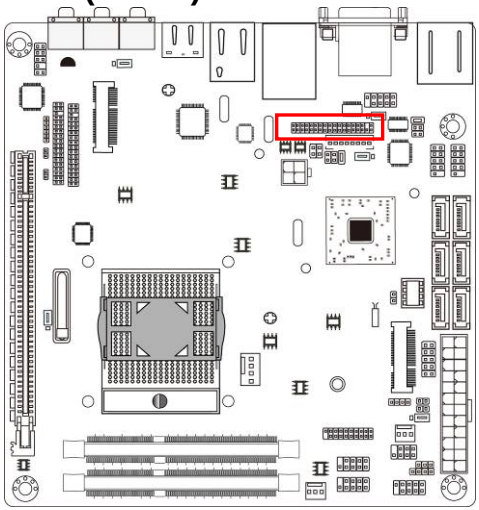


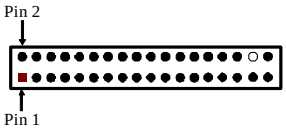
(9)SM_BUS (4-pin): SM BUS Header





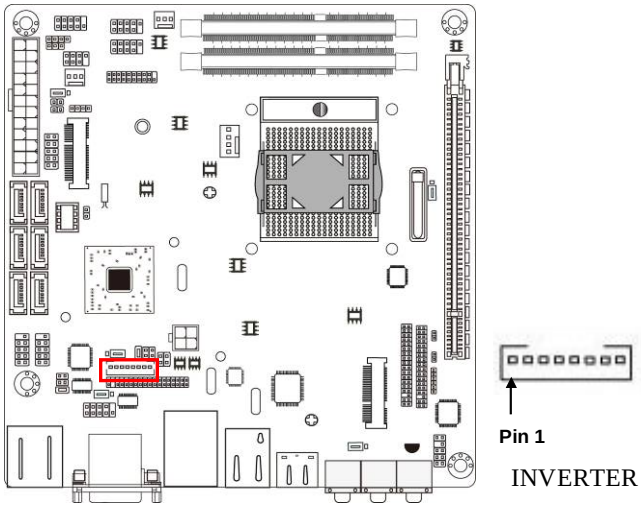
(10) LVDS (35-Pin): LVDS Header





Pin NO.	Pin Define	Pin NO.	Pin Define
Pin 1	LVDSB_DATAN3	Pin 2	LVDSB_DATAP3
Pin 3	LVDSB_CLKBN	Pin 4	LVDSB_DATABP
Pin 5	LVDSB_DATAN2	Pin 6	LVDSB_DATAP2
Pin 7	LVDSB_DATAN1	Pin 8	LVDSB_DATAP1
Pin 9	LVDSB_DATAN0	Pin 10	LVDSB_DATAP0
Pin 11	LVDS_DDC_DATA	Pin 12	LVDS_DDC_CLK
Pin 13	GND	Pin 14	GND
Pin 15	GND	Pin 16	GND
Pin 17	LVDSA_DATAP3	Pin 18	LVDSA_DATAN3
Pin 19	LVDS_CLKAP	Pin 20	LVDS_CLKAN
Pin 21	LVDSA_DATAP2	Pin 22	LVDSA_DATAN2
Pin 23	LVDSA_DATAP1	Pin 24	LVDSA_DATAN1
Pin 25	LVDSA_DATAP0	Pin 26	LVDSA_DATAN0
Pin 27	PVDD	Pin 28	PVDD
Pin 29	PVDD	Pin 30	PVDD
Pin 31	GND	Pin 32	GND
Pin 33	+5V	Pin 34	N/A
Pin 35	+12V (Reserved)	Pin 36	+3V

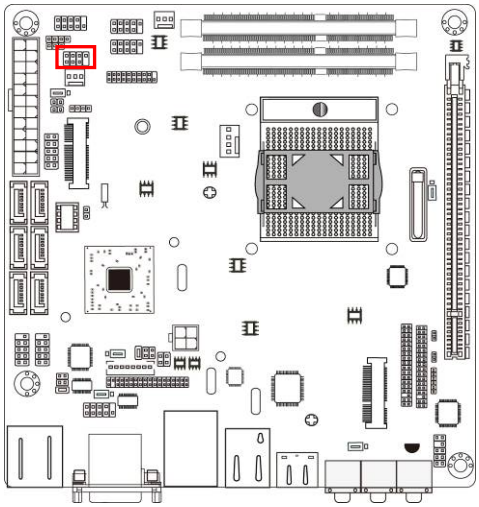
(11) INVERTER (8-Pin): LVDS Inverter Header

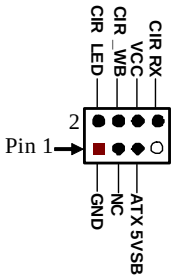


INVERTER

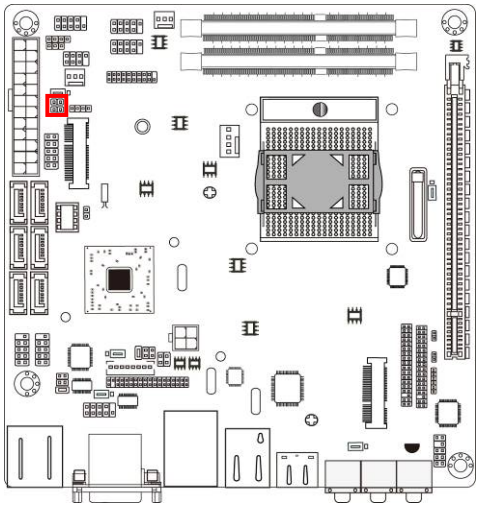
Pin No.	Definition
1	Backlight Enable
2	Backlight Duty
3	PVCC
4	PVCC
5	GND
6	GND
7	Backlight+ SW
8	Backlight- SW

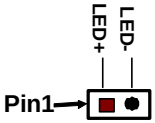
(12) CIR (7-Pin): CIR Header





(13) NIC_LED1/NIC_LED2 (2-pin): LANLED Header



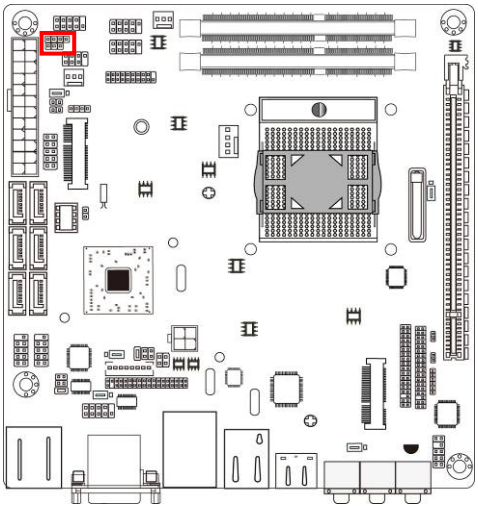


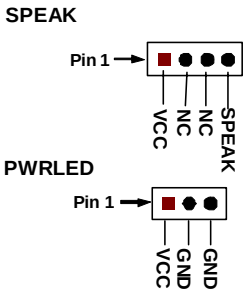
(14) PWR LED(3-pin): PWR LED Header

The Power LED is light on while the system power is on. Connect the Power LED from the system case to this pin header.

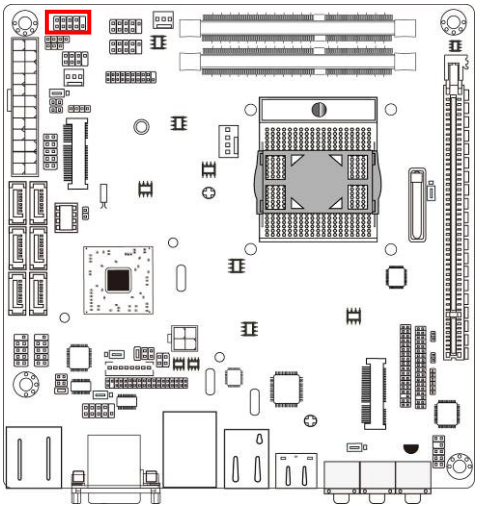
(15) SPEAK (4-pin): Speaker Header

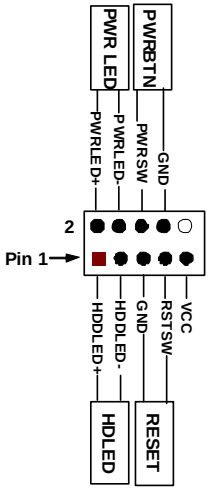
This 2-pin header connects to the case-mounted speaker. See the figure below.



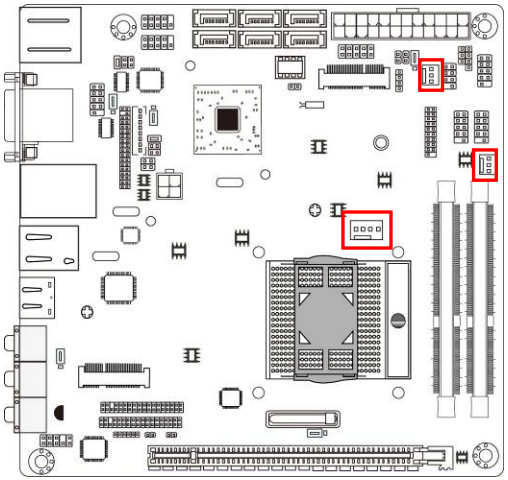


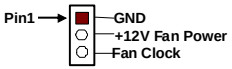
(16) JW-FP (9-pin): Front Panel Header



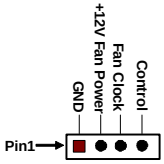


(17) CPUFAN (4-pin)/SYSFAN1 (3-pin)/SYSFAN2 (3-pin): FAN Speed Headers





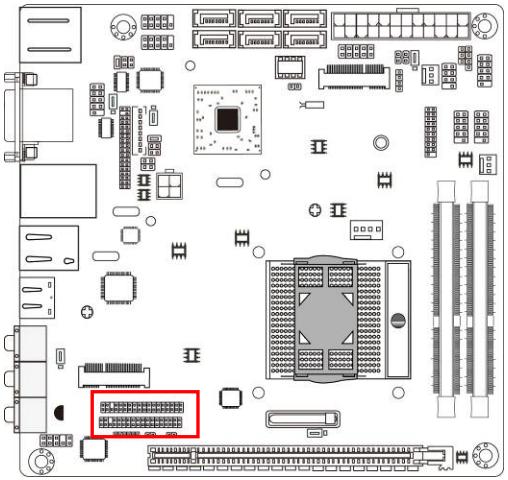
SYSFAN1/SYSFAN2 Header

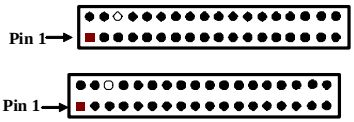


CPUFAN

(18) CN1/CN2 (35-Pin): Jetway Daughter Board Header

These two Headers can add the COM Port card/ LAN card.





CN1/CN2 Header

Chapter 3
Introducing BIOS

Notice!	The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download the latest BIOS version form our official website.

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program will gain control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

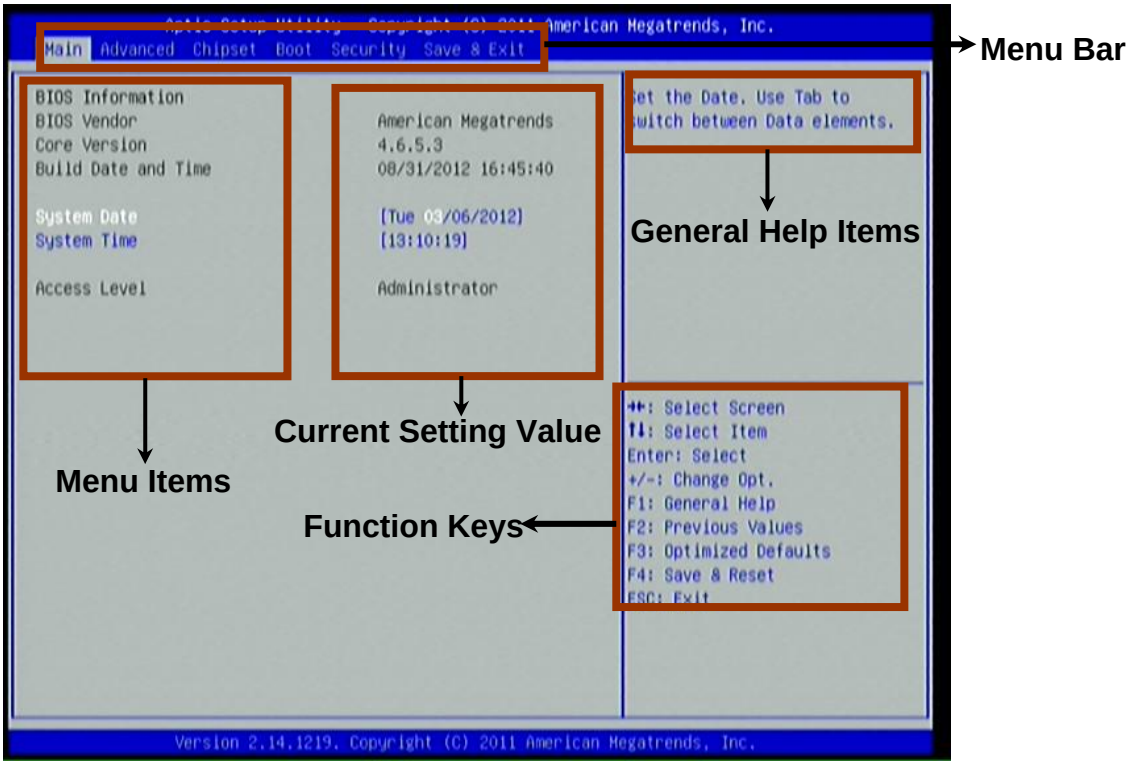
3-1 Entering Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

Press **<Del>** to enter Setup

3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



BIOS Menu Screen

3-3 Function Keys

In the above BIOS Setup main menu of, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press←→ (left, right) to select screen;

- Press ↑↓ (up, down) to choose, in the main menu, the option you want to confirm or to modify.
- Press <Enter> to select.
- Press <+>/<–> keys when you want to modify the BIOS parameters for the active option.
- [F1]: General help.
- [F2]: Previous value.
- [F3]: Optimized defaults.
- [F4]: Save & Reset.
- Press <Esc> to quit the BIOS Setup.

3-4 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the top right corner the screen.

Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <**Esc**>.

3-5 Menu Bars

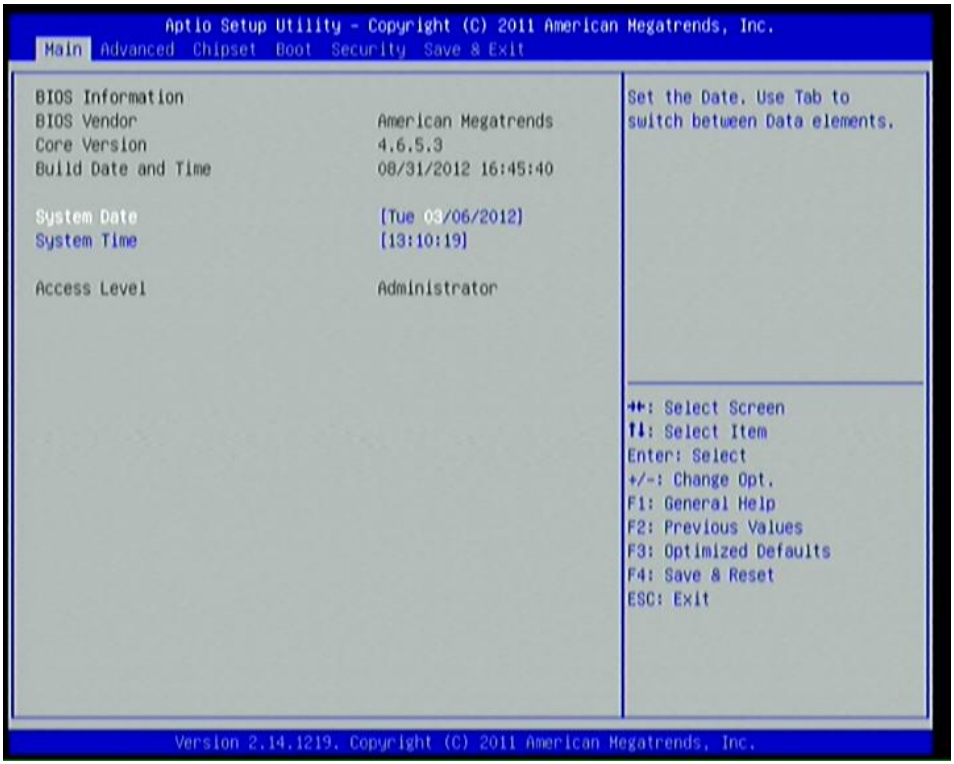
There are six menu bars on top of BIOS screen:

Main	To change system basic configuration
Advanced	To change system advanced configuration
Chipset	To change chipset configuration
Boot	To change boot settings
Security	Password settings
Save & Exit	Save setting, loading and exit options.

User can press the right or left arrow key on the keyboard to switch from menu bar. The selected one is highlighted.

3-6 Main Menu

Main menu screen includes some basic system information. Highlight the item and then use the <+> or <-> and numerical keyboard keys to select the value you want in each item.



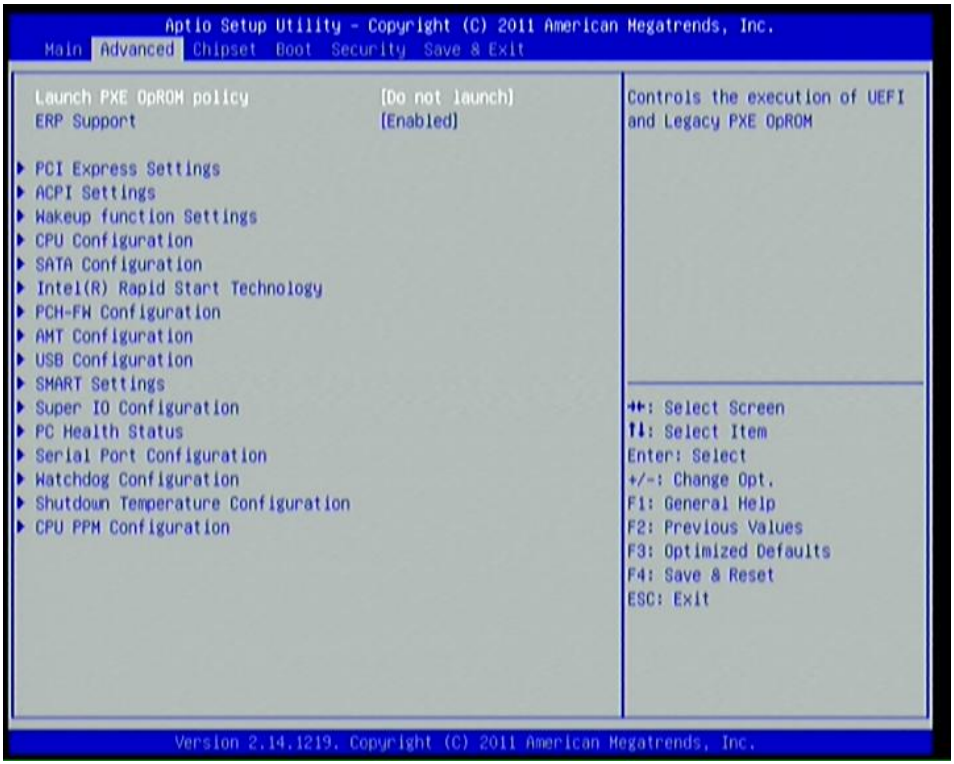
System Date

Set the date. Please use [Tab] to switch between data elements.

System Time

Set the time. Please use [Tab] to switch between time elements.

3-7 Advanced Menu



Launch PXE OpROM Policy

The optional settings are: [Do not launch]; [UEFI only]; [Legacy only].

Use this item to enable or disable boot option for legacy network devices.

ERP Function

Use this item to enable or disable ERP function for this board. This item should be set as [Disabled] if you wish to have Active All Wakeup Function.

PCI Subsystem Settings

Press [Enter] to enter and make settings for the following sub-items:

PCI Express Device Register Settings:

Relaxed Ordering

Use this item to enable or disable PCI express device relaxed ordering.

Extended Tag
If set as [Enabled] it will allow device to use 8-bit tag field as a requester.
No Snoop
Use this item to enable or disable PCI Express device No Snoop option.
Maximum Payload
Use this item to set maximum payload of PCI Express device or allow system BIOS to select the value.
Maximum Read Request
Use this item to set maximum read request size of PCI Express device or allow system BIOS to select the value.

PCI Express Link Register Settings:
ASPM Support
The optional settings: [Disabled]; [Auto]; [Force L0s].
Extended Synch
If set as [Enabled] it will allow generation of extended synchronization patterns.

Link Training Retry
Use this item to define number of retry attempts software will take to retrain the link if previous training attempt was unsuccessful.
Link Training Timeout(uS)
Use this item to define number of microseconds software will wait before polling 'Link Training' bit in link status register. Value ranges from 10 to 1000 uS.
Unpopulated Links
The optional settings are: [Keep Link On]; [Disable Link]. In order to save power, software will disable unpopulated PCI Express links if this option is set as 'Disable Link'.

ACPI Settings
Press [Enter] to make settings for the following sub-items:

ACPI Settings:
ACPI Sleep State
Use this item to select the highest ACPI sleep state the system will enter when the suspend button is pressed.

S3 Video Repost
Use this item to enable or disable S3 video report.

Wakeup Function Settings
Press [Enter] to make settings for the following sub-items:
Wake System with Fixed Time
Use this item to enable or disable system wake on alarm event. When set as [Enabled], system will wake on the hour/min/sec specified.
CIR Wakeup
Use this item to enable or disable CIR wakeup.
PS2 KB/MS Wakeup
Use this item to enable or disable PS2 KB/MS wakeup function. This function is only supported when ERP function is disabled.
USB S3/S4 Wakeup
Use this item to enable or disable USB S3/S4 wakeup. This function is only supported when ERP function is disabled.

CPU Configuration
Press [Enter] to make settings for the following sub-items:
Hyper-Threading
The optional settings are: [Disabled]; [Enabled].
Active Processor Cores
Use this item to select number of cores to enable in each processor package.
Limit CPUID Maximum
The optional settings are: [Disabled]; [Enabled].This item should be set as [Disabled] for Windows XP.
Execute Disable Bit
The optional settings are: [Disabled]; [Enabled].
Intel Virtualization Technology
The optional settings: [Enabled]; [Disabled].
When set as [Enabled], a VHM can utilize the additional hardware capabilities provided by Vanderpool Technology.
Hardware Prefetcher
Use this item to turn on/off the Mid Level Cache (L2) streamer prefetcher.

Adjacent Cache Line Prefetch
Use this item to turn on/off prefetching of adjacent cache lines.

SATA Configuration
Press [Enter] to make settings for the following sub-items:
SATA Controller(s)
The optional settings are: [Disabled]; [Enhanced].
IDE Legacy/Native Mode Select
The optional settings are: [Native]; [Legacy].
SATA Mode Selection
The optional settings are: [IDE]; [AHCI]; [RAID].

Intel(R) Rapid Start Technology
Use this item to enable or disable Intel(R) Rapid Start Technology.
***Note:** This item may be not available, depending on different hardware configuration.*

PCH-FW Configuration
Press [Enter] to see ME information and make settings for Firmware Update Configuration.
Firmware Update Configuration
Press [Enter] to make settings for ME FW Image RE-Flash.
ME FW Image RE-Flash
Use this item to enable or disable ME FW Image Re-Flash function.

AMT Configuration
Press [Enter] to make settings for the following sub-items:
Intel AMT
Use this item to enable or disable Intel Active Management Technology.
BIOS Hotkey Pressed
The optional settings are: [Disabled]; [Enabled].
MEBx Selection Screen
The optional settings are: [Disabled]; [Enabled].
Hide Un-Configure ME Confirmation
The optional settings are: [Disabled]; [Enabled].
MEBx Debug Message Output

The optional settings are: [Disabled]; [Enabled].

Un-Configure ME

The optional settings are: [Disabled]; [Enabled].

Amt Wait Timer

Use this item to set time to wait before sending ASF_GET_BOOT_OPTIONS.

Disable ME

The optional settings are: [Disabled]; [Enabled].

ASF

Use this item to enable or disable alert specification format.

Active Remote Assistance Process

The optional settings are: [Disabled]; [Enabled].

USB Configure

Use this item to enable or disable USB configure function.

PET Progress

Use this item to enable or disable PET events progress to receive PET event or not.

USB Configuration

Press [Enter] to make settings for the following sub-items:

Legacy USB Support

The optional settings are: [Auto]; [Disabled]; [Enabled].

USB 3.0 Support

Use this item to enable or disable USB3.0 (XHCI) controller support.

XHCI Hand-off

The optional settings are: [Disabled]; [Enabled].

EHCI Hand-off

The optional settings are: [Disabled]; [Enabled].

USB hardware delay and time-out:

USB Transfer time-out

Use this item to set the time-out value for control, bulk, and interrupt transfers.

Device reset time-out

Use this item to set USB mass storage device start unit command time-out.

Device power-up delay

Use this item to set maximum time the device will take before it properly reports

itself to the host controller. 'Auto' uses default value: for a root port it is 100 ms, for a hub port the delay is taken from hub descriptor. The optional settings: [Auto]; [Manual].Select [Manual] you can set value for the following sub-item: **Device Power-up delay in seconds,** the delay range in from 1 to 40 seconds, in one second increments.

SMART Settings

Press [Enter] to make settings for SMART Self Test. The optional settings are: [Disabled]; [Enabled].

Super IO Configuration

Press [Enter] to make settings for the following sub-items:

Super IO Configuration

CIR Controller

Use this item to enable or disable CIR controller.

Case Open Detect

Use this item to detect case has already open or not, show message in POST.

PC Health Status

Press [Enter] to view hardware health status.

SmartFan Configuration

Press [Enter] to make settings for SmartFan Configuration:

Smart Fan Configuration:

CPUFAN / SYSFAN1 Smart Mode

When set as [Enabled], the following sub-items shall appear:

CPUFAN Full Speed Temperature / SYSFAN1 Full Speed Temperature

Use this item to set CPUFAN/SYSFAN1 full speed temperature. Fan will run at full speed when above this temperature.

CPUFAN Idle Speed Temperature / SYSFAN1 Speed Temperature

Use this item to set CPUFAN/SYSFAN1 idle speed temperature. Fan will run at idle speed when below this temperature.

CPUFAN/SYSFAN1 Idle Speed Duty

Use this item to set specific duty at which CPUFAN/SYSFAN1 will run at idle speed.

Serial Port Configuration

Press [Enter] to make settings for the following sub-items:

Super IO Configuration

COM1 Port Configuration/ COM2 Port Configuration/COM3 Port Configuration

Press [Enter] to make settings for the following items:

Serial Port

Use this item to enable or disable serial port.

Change Settings

Use this item to select an optimal setting for super IO device.

COM4 Port Configuration

Press [Enter] to make settings for the following sub-items:

Serial Port

Use this item to enable or disable serial port.

Change Settings

Use this item to select an optimal setting for super IO device.

Serial Port Mode Select

Use this item to set serial port as [RS232] or [RS422/485].

WatchDog Configuration

Press [Enter] to make settings for Watchdog Configuration:

Watchdog Configuration:

WatchDog Timer Control

Use this item to enable or disable WatchDog Timer Control. When set as [Enabled], the following sub-items shall appear:

WatchDog Timer Val

User can set a value in the range of 4 to 255.

WatchDog Timer Unit

The optional settings are: [Second];[Minute].

Shutdown Temperature Configuration

Use this item to select system shutdown temperature.

CPU PPM Configuration

Press [Enter] to make settings for CPU PPM Configuration:

CPU PPM Configuration:

EIST

Use this item to enable or disable Intel SpeedStep.

Turbo Mode

Use this item to enable or disable Turbo mode.

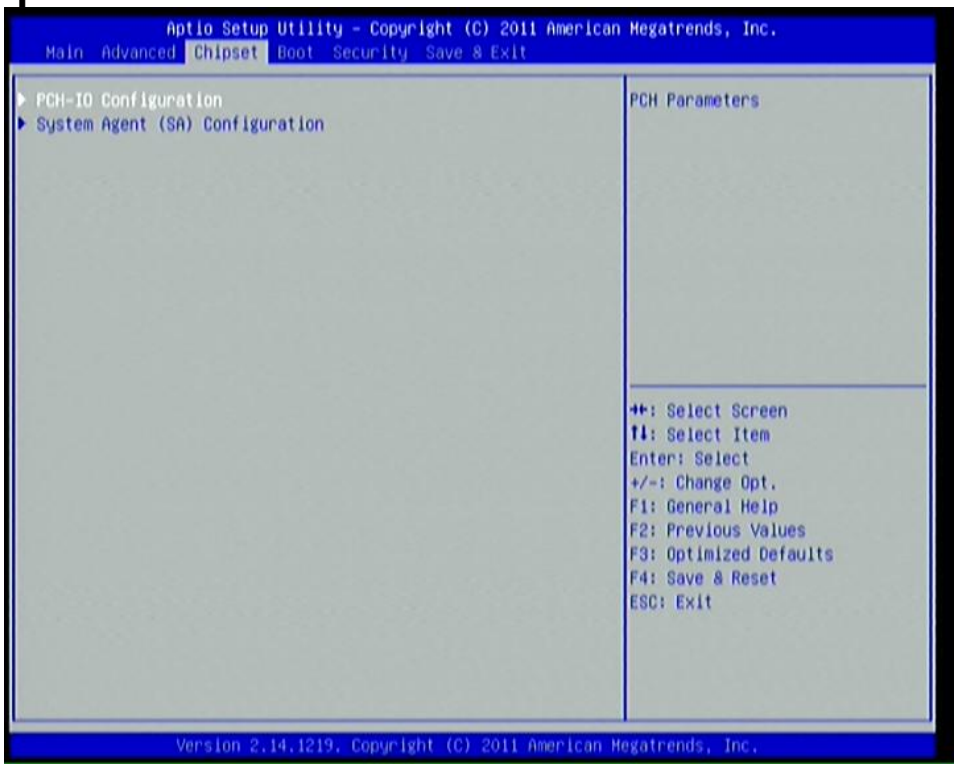
CPU C3 Report

Use this item to enable or disable CPU C3 (ACPI C2) report to OS.

CPU C6 Report

Use this item to enable or disable CPU C6 (ACPI C3) report to OS.

3-8 Chipset Menu



PCH-IO Configuration

Press [Enter] to make settings for the following sub-items:

USB Devices Configuration

Press [Enter] to make further settings USB device configuration.

USB Device Configuration:

XHCI Pre-Boot Driver

Use this item to enable or disable XHCI Pre-Boot Driver Support.

XHCI Mode

The optional settings are: [Smart Auto]; [Auto]; [Enabled];[Disabled].

HS Port #1 Switchable/ HS Port #2 Switchable/HS Port #3 Switchable/HS Port #4 Switchable

The optional settings are: [Disabled]; [Enabled].These items allow for HS port switching between XHCI and EHCI. If set as [Disabled], port is routed to EHCI.

Note:* *The above items shall not appear when **XHCI Mode is set as [Disabled].*

XHCI Streams

The optional settings are: [Disabled]; [Enabled].Use this item to enable or disable XHCI Maximum Primary Stream Array Size.

Note:* *The above item shall not appear when **XHCI Mode is set as [Disabled].*

EHCI1/ EHCI2

Use this item to enable or disable USB EHCI (USB 2.0) support. One EHCI controller must always be enabled. The optional settings are: [Enabled]; [Disabled].

USB Port Pre-Port Disable Control

Use this item to control each of the USB ports (0~13) disabling.

Azalia HD Audio

The optional settings are: [Disabled]; [Enabled];[Auto].

Azalia Internal HDMI Codec

Use this item to enable or disable internal HDMI codec for Azalia.

HDMI Port Output

The optional settings are: [Enabled]; [Disabled].

DP Port Output

The optional settings are: [Enabled]; [Disabled].

Onboard Lan1 Controller
Use this item to enable or disable onboard LAN controller.
Wake on LAN1 from S5
Use this item to enable or disable integrated LAN to wake the system.
Onboard Lan2 Device
Use this item to control the PCI Express root port.

High Precision Event Timer Configuration
High Precision Timer
The optional settings are: [Enabled]; [Disabled].
Restore AC Power Loss
Use this item to select AC power state when power is re-applied after a power failure. The optional settings are: [Power Off]; [Power On]; [Last State].

System Agent (SA) Configuration

Press [Enter] to make settings for the following sub-items:
VT-d
The optional settings are: [Enabled]; [Disabled].
Enable NB CRID
The optional settings are: [Enabled]; [Disabled].
Graphics Configuration
Press [Enter] to make further settings for Graphics Configuration.

Graphics Configuration
Primary Display
The optional settings are: [IGFX]; [PEG].
Internal Graphics
The optional settings are: [Auto]; [Disabled]; [Enabled].
GTT Size
The optional settings are: [1MB]; [2MB].
Aperture Size
The optional settings are: [128MB]; [256MB]; [512MB].
DVMT Pre-Allocated
Use this item to select DVMT 5.0 pre-allocated (fixed) graphics memory size used

by the internal graphics device.

DVMT Total Gfx Mem

Use this item to select DVMT 5.0 total graphics memory size used by the internal graphics device.

LCD Control

Primary IGFX Boot Display

The optional settings are: [VBIOS default]; [CRT]; [HDMI]; [DP]; [LVDS].

Secondary IGFX Boot Display

The optional settings are: [Disabled]; [CRT]; [HDMI]; [DP]; [LVDS].

** **Note:** The above item shall appear when **Primary IGFX Boot Display** is set as [CRT], [HDMI], [DP] or [LVDS].*

Active LFP

The optional settings are: [Disabled]; [Enabled].

North PCIe Configuration

Press [Enter] to make settings for the following sub-items:

NB PCIe Configuration:

PEG0-Gen X

The optional settings are: [Auto]; [Gen1]; [Gen2]; [Gen3].

PEG0 ASPM

The optional settings are: [Disabled]; [Auto]; [ASPM L0s]; [ASPM L1]; [ASPM L0sL1].

Enable PEG

The optional settings are: [Auto]; [Enabled]; [Disabled].

Detect Non-Compliance Device

Use this item to enable or disable the function of detecting non-compliance PCI Express device in PEG.

De-emphasis Control

The optional settings are: [-6 dB]; [-3.5 dB].

Memory Configuration

Press [Enter] to make settings for the following sub-items:

DIMM profile

Use this item to select DIMM timing profile that should be used.

Memory Frequency Limiter

Use this item to set maximum memory frequency selection in Mhz.

ECC Support

Use this item to enable or disable DDR ECC support.

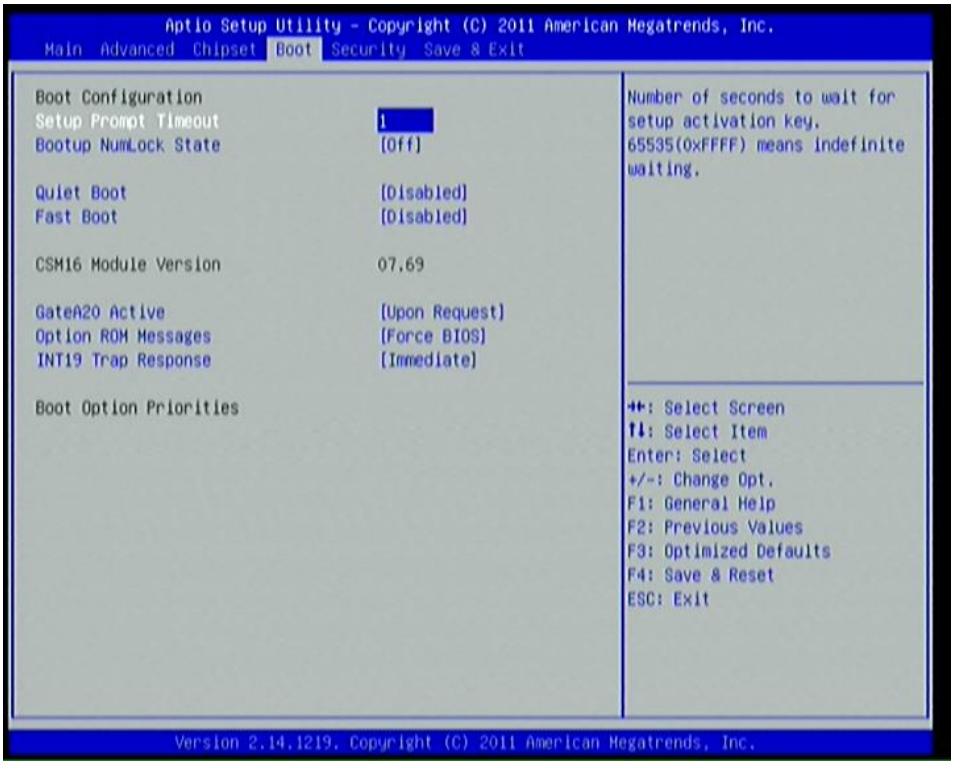
MMode Support

The optional settings are: [Auto]; [1N Mode]; [2N Mode].

Memory Remap

Use this item to enable or disable memory remap above 4G. The optional settings are: [Enabled]; [Disabled].

3-9 Boot Menu



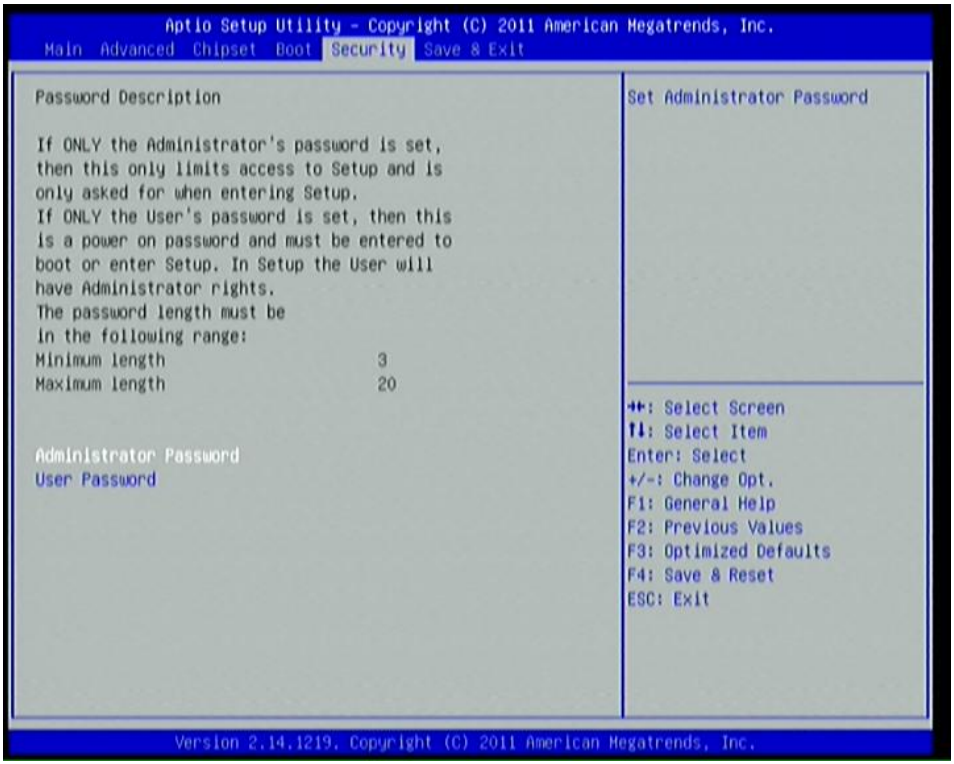
Boot Configuration:

Setup Prompt Timeout
Use this item to set number of seconds to wait for setup activation key.
Bootup Numlock State
Use this item to select keyboard numlock state. The optional settings are: [On]; [Off].
Quiet Boot
The optional settings are: [Enabled]; [Disabled].
Fast Boot
The optional settings are: [Enabled]; [Disabled].
Gate A20 Active
The optional settings are: [Upon Request]; [Always].
Option ROM Message
Use this item to set display mode for option ROM. The optional settings are: [Force BIOS]; [Keep Current].
INT19 Trap Response
The optional settings are: [Immediate]; [Postponed].
[Immediate]: to execute the trap right away;
[Postponed]: to execute the trap during legacy boot.

Boot Option Priorities:

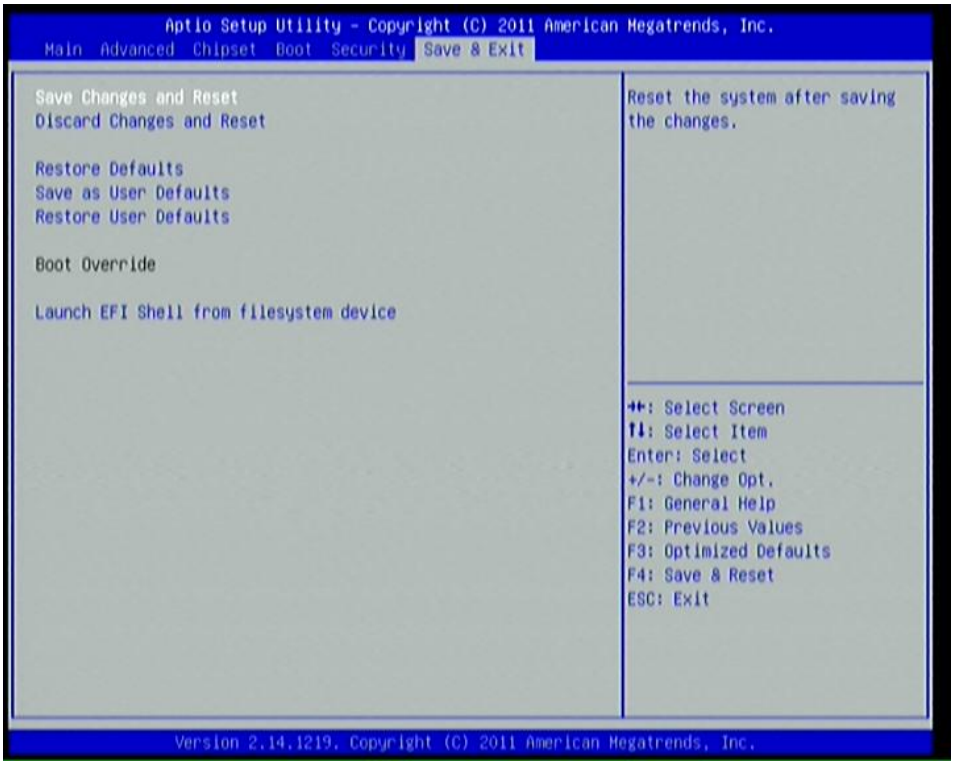
Boot Option #1/ Boot Option #2
Use this item to decide system boot order from available options.
Hard Drive BBS Priorities
Use this item to set the order of the legacy devices in this group.

3-10 Security Menu



Security menu allow users to change administrator password and user password settings.

3-11 Save & Exit Menu



Save Changes and Reset

This item allows user to reset the system after saving the changes.

Discard Changes and Reset

This item allows user to reset the system without saving any changes.

Restore Defaults

Use this item to restore /load default values for all the setup options.

Save as User Defaults

Use this item to save the changes done so far as user defaults.

Restore User Defaults

Use this item to restore defaults to all the setup options.

Launch EFI Shell from file system device

This item is for attempts to launch EFI shell application (Shell x64.efi) from one of the available filesystem devices.